

WHAT IS CLAIMED IS:

1. A method of inspecting a target by tera-hertz wave spectroscopic measurement, comprising:

5 a spectroscopic measurement step of pre-measuring a spectrum [S] of tera-hertz wave absorbencies of a target component for a plurality of frequencies ranging about from 1 THz to 3 THz; and

10 an object spectroscopic step of irradiating an object with tera-hertz waves of the plurality of frequencies to measure absorbencies I of the object,

15 wherein presence and absence of the target component in the object is determined on the basis of the spectrum [S] of the absorbancy S and the spectrum [I] of the absorbancy I of the object.

2. A method of inspecting a target according to claim 1, comprising a density calculation step of calculating a target density [P] on the basis of the spectrum [S] of the absorbancy S and the spectrum [I] of the absorbancy I of the object.

25 3. A method of inspecting a target according to claim 2, the target spectroscopic step comprising a step of two-dimensionally scanning the object with the tera-hertz waves to measure a two-dimensional distribution [I] of the

absorbancy I of penetration light,

and the density calculation step comprising a step of calculating a two-dimensional distribution $[P]$ of the target density P .

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4. A method of inspecting a target according to claim 2 or 3, comprising a step of two-dimensionally displaying the two-dimensional distribution $[P]$ of the target density P .

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5. A method of inspecting a target according to claim 2, 3 or 4, wherein tera-hertz waves of N number of different wavelengths are used for M number of targets, N being equal to or larger than M ,

15 when N is equal to M , the two-dimensional distribution $[P]$ of the target density P is calculated by

$$[P] = [S]^{-1}[I],$$

and when N is larger than M , the two-dimensional distribution $[P]$ of the target density P is calculated by

20 $[I] = [S][P]$, using a least square method.

6. An apparatus for inspecting a target using tera-hertz wave spectroscopic measurement, comprising:

25 a tera-hertz wave generation device (12) that generates tera-hertz waves (4) of a plurality of wavelengths;

a two-dimensional scan device (18) that scans an object (10) with the tera-hertz waves of the plurality of wavelengths,

5 a spectroscopic measurement device (14) that measures a two-dimensional distribution [I] of light absorbancy I of the object; and

10 a target density calculation device (16) that calculates a two-dimensional distribution [P] of a target density P on the basis of a pre-measured spectrum [S] of light absorbancy S of a target and the two-dimensional distribution [I] of the light absorbancy I.

7. An apparatus for inspecting a target by tera-hertz wave spectroscopic measurement, according to claim 6,
15 comprising an image display device (20) that two-dimensionally displays an image of the two-dimensional distribution [P] of the target density P.